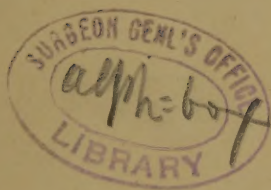


WISHART (J.)

An inquiry into the
Origin of epidemics x x x x
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A N I N Q U I R Y
INTO THE
ORIGIN OF EPIDEMICS,
AND A PHYSICAL AND CHEMICAL
ANALYSIS OF THEIR SPECIFIC CAUSE,

ON A NEW THEORY OF MATTER AND FORM,

BY J. WISHART, M.D.

The doctrine that the human body possesses the power of generating a poison, the effects of which are adequate to the destruction of life, is humiliating to the self-love of man. When calmly examined, it is so revolting and derogatory to the dignity, and mortifying to the pride of the lord of creation, that it is strange any amount of talent could have made it popular. In medicine, however, as in every thing else, there is a fashion, which, at times, runs wild, in opposition to taste, science, reason and facts; and on no other ground can we account for the hypothesis, that the human functions convert a chemical poison, originating in, and resulting from, the decomposition of organised matter, into an undecomposed human poison, and originate, *de novo*, in a state of health, the miasm of plague, yellow and typhus fever, &c.

Without claiming to be the source, for the deposit, and the laboratory where, not only all the poisons of epidemics are both generated and re-generated, but the source of all miasms, according to some respectable writers, there is surely enough legitimately clinging to him, to humble him in the dust. His form and features are caricatured in the class of ourang-outangs, monkeys and apes.—His animal nature, and instincts, he participates with the brute, and even in some of the most amiable traits of character, viz: docility, attachment and fidelity to friends, the dog is no contemptible rival. And yet this compound being, whose physical nature renders him so low, in his psychological nature, is so elevated as to participate in the attributes of the Divine Being.

In an inquiry into the origin of fevers, published in the "Missouri Medical & Surgical Journal," for May and June last, the position that the human functions could re-produce none but its own miasms, was advocated. The ground on

which that hypothesis rests, will now be laid before the profession, and it is believed the line of distinction, between human poisons, and those of the inferior animals, as well as the chemical or æriform miasms will, in this analysis, be so clearly defined, as to prevent confusion on this point, in our future investigations of the question involved, should my explanation be received as the true one.

It may be assumed as a general proposition, that every agent which, when brought into contact with the human body, produces a deleterious influence on it, is, in a broad sense, a specific poison, and gives rise to a specific effect, peculiarly its own. Thus, the narcotic poisons, in a concentrated form, induce almost instantaneous death, by an impression on the nervous system. In smaller portions, or less concentrated, they give rise to symptoms, and produce effects, uniform in character, and indicating their presence with almost unerring certainty. The presence of the mineral poisons, is indicated by another group of symptoms, and pathological conditions of a different character, yet no less uniform than the preceding. The gaseous or æriform poisons are characterised by symptoms of still a different kind—while the animal poisons are governed by laws, and give rise to symptoms and effects, peculiarly their own. But those alone giving rise to diseases assuming an epidemic form, consisting of human and other miasms, form the decomposition of organized matter, and those arising from a derangement in the constitution of the atmosphere, not appreciable, are the only known sources of epidemics. Of the human poisons, there are but four which give origin to epidemic diseases, although there are many other human poisons transferable by contact, not of this character. It is not my design to go into this subject on the present occasion, having touched on this point in a former essay on malaria. One test may, however, be made by any one, by making the inquiry how many persons in this city over forty or fifty years, have passed through those diseases universally admitted to be the product of human miasms, and the proportion of these same persons who have escaped the malarious epidemics.

It is laid down as an universal law of matter, that quality is the result of the form of the particles of which every kind and variety of body is composed. This law was presented to me, in looking into the properties and laws of miasms, and lies at the foundation of this inquiry; and hence every distinct species or form of animal life, from the lord of creation down to the zoophite, and every different vegetable, from the oak to the moss, has, each, *in the form stamped upon it*, been impressed with different qualities from all

others, and that these diverse properties are the results of the *form* of the *atoms* composing the body. The effect of this law is announced in a standard work, though not medical, that is, that the leopard cannot change his spots, nor the African his skin; and this is the enunciation of an universal law of organized life. In tracing the laws and properties of æriform poisons, this law of nature, stamped on matter, occurred to me, in every stage of the inquiry, that quality is the result of form. But in pursuing the examination, I discovered that this idea was not original with me.—Professor Bush, of New York, and others have made the observation, that “*quality*, when traced back to the last analysis, will be found to resolve itself into *form*.” But, although writers on Natural Philosophy admit that *form* is inherent in matter, it has not been presented as the mode of existence of *quality*, which is generally supposed to be something else than *form*. Light is one form of matter, and heat is another. Electricity is a distinct form, and magnetism is another modification of matter. And, although it has been questioned whether light, &c., are matter, it has never been refuted, nor ever can; and, notwithstanding there are some analogies in them, there are, also, striking differences in their properties, from which difference of form is deduced. This question will be illustrated as we proceed. The solution of the problem, as to the properties of miasm, which will be given on this hypothesis, conforms to the simplicity and uniformity discoverable in all the works of nature. For it seems, not only to pervade our planet, as I shall show, but, if we reason from analogy, the entire solar system, no two of the planets being alike; and the two bodies which reach us from the sun, are different. And by the exercise of this principle, the Author of nature governs all His physical agents, as I shall attempt to show, in another mode, and on a different occasion.—uniformity of principle, and diversity of result, are thus displayed throughout that part of the universe of which we can take cognizance.

Geological researches show that, in the bony skeletons of animals, there are no identities of structure, in the various species. Extinct species are also obsolete forms, which have yielded their places in creation to recent formations, produced in endless variety, presenting us with the amazing and astounding truth, that, although creative energy has never ceased, the same formation has never been repeated, so that neither in living species nor dead, has identity of form a place in creation.

When we turn to the pages of Comparative Anatomy, we are met by the same uniformity of result, in the unlim-

ited analogies without identities in any of the different species. In Zoology, the human form seems to be the model or original form, varied, in the inferior animals, in vast diversity of form, throughout the boundless field of animal existence; and every variation or inflection of the original form accompanied by a corresponding diversity of quality. This endless variety of form, wonderful and magnificent though it be, is yet less astonishing than the fact, that from the bony skeleton and muscle to the most minute part—the hair, the fur, wool, cuticle, secretion and exhalation—the quality of all the parts are distinct from the same parts of all others. None of these parts, in man, are identical with the corresponding parts of any other animal, nor does any one of the inferior animals correspond, in any of their parts, with the same parts of any other species. The exhalations of each species, transude from the general mass of the fluids and solids, composing the entire animal, and are made up of the *essential form* of the particles which give quality to every species of organized being.

The same diversity in the form of the atoms is equally true, in vegetable physiology. The form of the cabbage is as different from that of tobacco, as the form of the particles of the former are different from that of the latter, or the quality of the one is from that of the other. The aggregate form composing the individual of a species, is the result of the form of the particles which stamps quality upon it.

But we must descend yet lower, and embrace, not only microscopic animals and vegetables, but also gases, miasms, effluvia and malarias, as well as ultra microscopic organizations, and entities; a knowledge of the existence of which we have reached by experiment and induction. Microscopic fungi are known to vegetate in certain cutaneous diseases of man, animalculi are found within the coats of vegetables, and swarm in water, in tight vessels. The sporules of these microscopic fungi, and the germs of the animalculi, although ascertained to be governed by the laws of animal and vegetable generation, are beyond the reach of any microscope; nor can we, by this or any other test, detect malaria nor the fluigs in the blood vessels, or viscera of animalculi, and many other things which we know exist, and therefore infer their presence from their effects. And from the circumstances and various phenomena under which epidemics have arisen, progressed and declined, the laws which distinguish human from chemical miasms, have been deduced. Gases are detected by chemical tests, but neither chemical tests, nor optical invention, have detected effluvia, vapors, odors or perfumes; and yet they each have a body and a form as distinct from each other, and as inconvertible into

one another, as the forms of the animals or vegetables from which they emanate, are so. It is the *peculiar essential form* of these odoriferous, aromatic, and other effluvia and malaria, in which the power of making, each, its own specific impression on the olfactories, resides. These forms, in common parlance, are termed qualities, without a definite idea of what it is that constitutes the difference between these invisible entities. But we will show that, according to physical laws, they are recognised as bodies, and if so, *form, shape or figure*, cannot be denied them. As we know of no other modes of existence than mind and matter, and an union of these two, in the same form, as in the compound being, *man*, any entity of which we can form an idea, must partake of the nature of one or the other of these entities.—No one will contend that a vapor, effluvium, miasm, gas or other æriform body partakes of a psychological or moral nature, or compound of mind and matter; therefore it follows, that not only these, but what are termed the laws of nature, are physical, or they are nothing. These are philosophical truths that so far, cannot be refuted. By regular induction, the point will be reached that effluvia, odors and perfumes, &c., are bodies and forms. Experience has taught us that each odor and perfume makes a different impression on the olfactory nerves. What is the reason of this difference? This question might be answered by asking another—what is the reason we perceive a different sensation when we touch a brick from what we do when we touch a stone, or a piece of wood, a corn ear, an apple, cloth, cotton, &c., and still a different one when we eat an onion, from that which is experienced in eating an apple? And why is the smell of the rose and the geraneum different? The reply, very probably, will be, they are different substances, and different qualities of things. That is true, but it is not a *reason* for the difference. The sense of touch in the fingers, the sense of taste in the tongue, and the sense of smell in the olfactory nerves, are all sentient surfaces, furnished from the same nervous fountain, the brain, and transmit the impression, all, on the same principle, to the sensorium, according to the form of the body impressed on each, called touch, taste and smell. It may be asserted, in opposition, that it is the quality that makes the difference; but quality, as will be seen more clearly presently, resolves itself into form.—If the body is rough or smooth, hard or soft, blunt or sharp, tart or bland, cold or hot, round or angular, these are *qualities* of *bodies*, not the body itself, but inseparable from it, each making a distinct impression, *sui generis*.—The smell of fresh grated horse-radish, nearly lifts up the scalp, the smell of an apple is pleasant; the same

is true of the taste of these two substances. The form or shape of the particles accounts for both, the impression on the nerves of the tongue and the nose. It is utterly impossible to conceive of a body without a form, or a form without qualities; and equally so to conceive of quality without a body. The position, then, seems to be sustained, that an odor, perfume, vapor, effluvium, &c. are all bodies, and that the reason why each makes a different impression on the olfactory nerves is, that the form of the particles of which each is composed, is different from that of all others. And the same is equally true of taste, the form of the particles of the various alimentary, and other substances, is as different, in all the variety of sensation, in this sense, as that of smell. No other reason can be assigned for these things than we give, for difference of sensation, in the sense of touch, when we feel different articles.

That this is the true explanation of the cause of the difference in the smell and taste of different substances, is rendered positively certain, if any additional evidence or argument is necessary, not only from the considerations and facts presented, but also from the fact, that, according to Dr. Cheselden's account of persons born blind, and couched by him, it appears, at first, they had no idea of figure, distance or color, by sight, until they had learned to see, that is, until they acquired a knowledge of these things, by habit and the aid of their other senses. Hence we have no idea of the form of odors, perfumes and alimentary articles, because we cannot see the form of the particles of which they are composed. It is true, we see the aggregate form of many articles of diet, but many, when dressed, we cannot see, but it has never occurred to us, thus to account for the difference, although the fact was palpable, and indeed it has been supposed impossible to account for the fact. This proves conclusively, that none of our other senses, nor all combined, can give us an idea of form without the aid of vision. The particles of matter reduced to their ultimate form, are ultra microscopic, and hence are beyond the reach of vision; and till this late hour of the day, we have not accounted for this simple fact.

The inference, then, is inevitable, that the peculiar *essential* form, or shape or figure stamped by nature on all bodies, is as immutable as the fiat by which it was impressed, without obliterating quality, and hence the reason why the virus or miasm of any one disease cannot give origin to any other malady than its own specific kind. Unless, therefore, we can change the form of the particles of which each specific malaria, miasm or poison is composed, we cannot change the legitimate result of the specific impression.

To those unaccustomed to look at this question philosophically, it may seem strange to witness a discussion on the form of an odor or a perfume, and even members of the profession may regard it as abstractions, metaphysics, &c.; but these bodies may, nevertheless, be as scientifically made the subject of an analytic investigation as the form, color or other properties of the rose, the horse or the natural agents of the decomposition of organized matter.

As to the specific forms of the molecules which make up the miasms of epidemics, it is a point beyond the reach of man's present knowledge, and it is probable, will ever remain so. It can be nothing but speculation, whether these atoms take the form of the body from which they emanate, or are impressed with other modifications. Be this as it may, if quality is the result of form, no change can be effected in the specific character of any, in its progress, only in the degree of its violence or mildness, owing to incidental circumstances. If it is a human miasm, it must, on this hypothesis, forever remain such; and if the result of a chemical process, the product, like all results of chemical affinities, must take a form corresponding with the materials of which it is composed, and the form will remain permanent, while it possesses the power of generating its own specific impression on the human system. Quasi contagion, or a miasm that is, according to some pathologists, sometimes contagious, and sometimes not, can have no place in our system of itiology; and if it is once clearly fixed in our minds, that every miasm of a particular epidemic, has a specific form or shape or figure of its own, different from all others, as the disease they each generate, we shall not be liable to confound human and marsh miasms nor to contend that either an animal poison, originating in a source external to the human system, or a malaria, the product of chemical decomposition, can be re-produced by the functions of the human system.

This distinction cannot be explained away, by the fact that the elements of all organic bodies may be reduced to the same principles by a chemical process, which is not exactly true, however; because the distinction is a physical one, lying at the foundation of matter itself, and cannot be reached by a chemical analysis.

When Harvey discovered the theory of the circulation of blood, nearly as now held, thirty years elapsed before he could get it admitted. But when it was recognized, skepticism gave place to credulity, and the profession, with the world, ran wild. It was believed that a panacea for all diseases was found. Rejuvenescence, youth and beauty and immortality were brought to light in the transfusion of the

blood of a young, healthy animal, of any kind, into the veins of man. The blood was the seat of all diseases, at that time, and by drawing it off the disease went with it, and replacing it with the blood of a calf or a sheep, it was believed, all diseases would be cured. After repeated trials of this remedy, it was abandoned, being followed by convulsions and death. The analysis of the blood of different animals, shows that, although there is a difference both in the physical and chemical properties of the blood of different animals, yet not sufficient, satisfactorily to account for the violent and fatal effects resulting from it as practised on man. And as no bad effects followed the transfusion of the blood of one animal into another of the same species, we are compelled to resort to some other reason to account for the phenomena. The form of the particles of matter accompanied by the appropriate quality, which distinguishes every formation throughout material existence, alone gives us an intelligible and satisfactory reason for this fact. For, although chemical analysis may reduce the constituent, elementary principles of every form of organized being into the same materials, yet the skin, the muscle, the fat, the secretions, and exhalations, the hair, the wool and fur, with many other peculiarities of secretion and surface, of feather, crust, shell, electric fluid, cuttlefish, ink, musk, castor, &c., with every peculiar property, the production of which is limited to different species, throughout animal and vegetable physiology.

The *form of the particles of matter which give character to the species*, is carried out in the *aggregate form of the individual which distinguishes it from all others*. On no other hypothesis that has met my eye, can these phenomena be, philosophically, accounted for. This explanation is corroborated by the impenetrable mystery still surrounding the theory of animal generation. While some physiologists contend that the spermatozoa are visible, with a good microscope, in the semen of the male, in the form of tadpoles, and thus form a theory which gives the female no other part in the process than to furnish the germ nursing nidus. Others maintain that these thousands of supposed manikins are but sperm capsuls, which burst, and throw out a pollen sperm, which vivifies the germ furnished by the female. There are insuperable objections to the former hypothesis, which is the most recent. What becomes of the thousands of homuncules, seen in a single drop of male semen? Why, according to this supposition, they are killed off, by the master spermatozoa—thus making Nature perform a great deal of useless labor, to sustain a system of wholesale murder, in this animalcular war. The most

powerful microscopes leave this question still obscure, and the speculations on it, such as above stated. If, then, we are unable to reach certain conclusions on a subject like this, by the aid of optical inventions, we cannot hope to reach the particles of matter in their ultimate reduction.

That we may have as clear an idea as may be of the minuteness of a particle of matter, in which we shall perceive the reason of the failure of the most powerful microscopes to make it visible, a quotation from Dr. Ewing's *Philosophy*, follows:

"By the microscope, we discover animalcules which lie beyond the reach of the most penetrating eye; the particles of whose circulating juices, must be inconceivably small; and yet the particles of light are as much smaller than these, as they are smaller than the whole earth. For otherwise, coming from the sun with the amazing velocity of twelve millions of miles in a minute, they would tear, in pieces, the coats of the strongest eye. If a particle of light weighed but the two hundredth part of a grain, it would strike the eye with a momentum equal to that of a cannon ball of ten pounds weight when discharged from the cannon." If we run out this calculation, we are almost as much lost in the diminution of matter, as in the immensity of space.

If we look into the laboratory of the chemist, we are presented with additional evidence of the truth this law of nature, stamped on matter. What is chemical affinity? It is nothing more than a development and display of the laws of matter. The chemist makes nothing, creates nothing, but unfolds new forms with new properties, beautifully diversified, and endlessly multiplied, in chrysaline and other forms, resulting from the union of simple and compound bodies, and the separation of compound into elementary forms.

But whether he proceeds by analysis or synthesis, every new process develops a new form, invariably accompanied with new qualities—so that new properties are the inseparable concomitant of change of form. In mineralogy and metallurgy, the chemist is still met by the same laws, and the same uniformity of result. The aggregate form of the ore is affected by the combinations in which it is found.—The form of the particles of the different kinds of matter of the compound, each impressing its own form, and thus a particular form is the result of all the different forms of which it is composed. The supposition that the quality of metals is the result of the arrangement of the particles, does not seem well founded. Thus, the various departments of nature, into which we have looked, all sustain our hypothesis, and corroborate the explanation of phenomena, for which we have not hitherto accounted.

The germs of the infusoria, the spores of the microscopic

fungi, odors and aromas, miasms and gases, although some of them are so pungent as to inflame the eyes, and others affect respiration and extinguish life, and the existence of all as positive bodies, certain, yet none of them, with the exception of the gases, can be made the subject of chemical or other test. The existence of miasms being thus proven as bodies and specific forms, and their specific impression on the human body undoubted, and having philosophically traced the cause of the difference of the impression of æriform bodies on the olfactory nerves, to a difference in the form of the particles of which each is composed, we have legitimately shown that the specific causes of epidemics are real *substantial forms*—as decidedly so as the sources from which they arise. And therefore it follows, as an inevitable deduction, that such form can be reproduced by the action of the same agents alone, that first gave it origin, whether from the human body, or chemical decomposition. If the miasm is, in its origin, the product of chemical agents, the form of the miasm renders it impossible for the human functions to reproduce it. If a human poison, the form cannot be repeated by a chemical process.

An examination of the manner in which malaria is formed, the agents by which it is accomplished, and the materials from which it is disengaged, will show the utter impossibility of the human body imitating it, aside from the obstacles already presented. By a simple process, we separate butter from milk; by another, we extract cheese—but we cannot, by either of these, nor any other mode, produce either from water, because they are not there. A chemical action produces yeast, the materials being present, and the temperature right; the play of affinities brings the agent necessary to the result into contact with the materials, and the product is certain. In the generation of malaria, nature furnishes the materials, and is, herself, the chemist that accomplishes the labor, and gives the product; which will be as specific, according to the materials, and the perfection of the decomposition, as the butter, the cheese or the yeast. Now we have just as much evidence to show that the human functions re-produce butter, cheese and yeast, as we have that they will re-generate malaria of any sort. The malaria, either simple or combined with other forms, is disengaged from the putrifying matters that furnish them, by the agents and auxiliaries of putrifaction and just the same materials, the same agents, and the same auxiliaries must be present, in the human body, to give the same product. Because it is as purely chemical, as that performed in the laboratory of the chemist. This argument cannot be answered. Every one who resides on the Mississippi,

knows the season, circumstances, and agents necessary for the generation, and extinction of mosquitoes. Precisely the same state of things which is favorable to the development, and extinction of malaria, and yet, malaria is, to some extent, generated where mosquitoes do not greatly prevail.

In pursuing the investigation of the question, what miasms are, and what are not the product of the human body, the principles and facts referred to in this analysis, will lead to certain conclusions on this point. Should some one, more able to do justice to the subject than myself, not engage in the investigation, I may, at a future period, take it up. On a false view of human miasms, quarantine laws have imposed a tax on productive industry, in the commercial cities of civilized nations, of millions of dollars.

In the discussion of this question, facts conflicting with each other, have been presented, and arguments of the same character multiplied, and varied in form, have been bandied, by the contending parties on the opposite sides.—In plague, for instance, it is stated, with great candor, by an able advocate of the contagious hypothesis, that this disease commences at a definite period, suddenly, in the filthy alleys and crowded streets of populous cities, and then spreads by contagion from one person to another—that matter from a bubo, sometimes takes, but oftener fails; that the Turkish government announces, by the discharge of cannon, at Cairo on the 24th June, when the sun enters the Cancer, the cessation of the disease—that the Arab servants steal the clothing of the soldiers who died of the disease, and wore them with uniform immunity—and that the Turks and Moors, immediately after the 24th June, expose the clothing of the thousands who perish during the prevalence of the epidemic, in the market, for sale, without, in a single instance, affecting the health of those exposed, in the course of this traffic. Again, it is maintained, that the cause which was sufficient to account for the appearance of the first case, under such circumstances as named, is also adequate to account for all the cases of the same kind, at that time and place, which may succeed. Cleanliness and ventilation, say some, will speedily extinguish any epidemic. An epidemic of the same character, is sometimes contagious, and sometimes not, say others.—And again it is asserted, and all this, on the highest medical authority, that a disease may arise from other causes than its own specific miasm, and also, that the human body, in a state of perfect health, may generate the specific miasm of an epidemic, &c., &c.,—thus showing the unsettled and vacillating, and contradictory, and crude unscientific state of medical opinion on this question. In the middle of the

nineteenth century, we have a right to expect a better condition of medical opinion than this exhibits; and it will be seen that the theory herein developed, will reconcile the conflicting opinions on this recondite question.

All the agents necessary to give rise to putrid exhalations, and favor the generation of malaria, are known. The laws by which human and marsh miasms are governed, recognized, and yet these two sources of epidemics are confounded. How are we to isolate each miasm from all others? Nature has made the distinction, in the form of the particles of each miasm; and this form as complete and perfect, as it is between the form of a human being and that of a horse, a dog, a stalk of corn, or a head of cabbage.

Ingraft the wool of a negro into the head of a white man, and he will not grow wool. Inoculate him with the pigment of the rete mucosum, and he will not turn black. His skin cannot be induced to grow hair on the body, nor wool, fur, feathers, scales or shells. None of his secretory organs will elaborate mush or castor, or produce wheat or corn, or potatoes and apples. In a state of vitality, does his body ever decompose and recombine any ingesta, by a process chemical or putrefactive? Never!—These and other limitations, throughout the different functions of every species of animal, and vegetable, are the result of the law of matter, to which we have referred, and have developed. The form of the particles has stamped a character on every species, and made it what it is, and it can be nothing else. And thus a general law has been established, that no species can produce any other than its own forms. And, indeed, to all matter this is a law, with varieties throughout physical nature.

Hence we observe in Zoography, that the combination of causes and circumstances, most favorable to the development of a fine physical form, in man, is, also, conducive to a better mental organization, as well as physical qualities; and in the inferior animals, the form is the criterion of quality. In vegetable physiology, this principle is, likewise, invariably true. But when the circumstances are adverse to a good development, of the aggregate form, resulting from the form of the particles constituting the essential specific form, the quality, with the imperfect development, is inferior. Hence varieties of species, in physiology as well as disease. Take two apples from the same tree—one from the top limb, and the other from an under branch; the light, air and heat bring the former to greater perfection, and the flavor will be finer than in the latter, which did not enjoy these advantages.

The wool-grower and dealer will distinguish the charac-

ter of the sheep, by the staple of the wool. The cotton trader, by an examination of the staple, can designate its grade. The animal from which the fur was taken, is known by the fur merchant, and even the season in which the animal was taken. And so, also, with the peltry-man and hide-dealer. This is the case, likewise, with dealers in oils, fats, tallows, suets and lards, and meats of all kinds, and it can even be discovered on what kind of food the animal was fattened. These observations are applicable to every animal and vegetable product, useful in domestic economy.

Impressions on the olfactory nerves are varied with every new odoriferous body. This must arise from peculiarity in the odor or perfume. If it is not form, what is it? There can be no body without a form, nor a quality without a body. But we have shown that quality, in its ultimate analysis, is resolved into form. Now, so long as it is said to be just a quality, without knowing or enquiring in what that quality consists, so long our views and opinions will be vague and indefinite, and the quality will be supposed to consist in this or in that, we do not, very well understand, what.—There is too much of this loose twattle, in medicine, for the good of mankind, and the sooner it is banished, the better. Now it is immaterial to the question, what the quality may be, to form it, must come at last. But it is impossible to determine what the particular form may be, nor is it, indeed, important that we should know, farther than to gratify curiosity. For if we have philosophically arrived at a knowledge of the truth of this position, it will account for the difference of impressions, good or bad, as well, without knowing what the exact form is, as if we did know that point by the evidence of the sense of sight. The practical benefits which will result from this view of the question, are incalculable. When the origin of an epidemic is once ascertained, and it is settled that the miasm has a specific form, it will also be settled that no other agents can reproduce that form, but those which first gave it being.

In the profession, it has been laid down as a general rule, that effluvia and vapors which are offensive, are deleterious to health, and pleasant perfumes, salutary. It is believed the reason of this distinction will, now, be better understood than heretofore. The design, most probably, in placing the sense of smell immediately over the mouth, was to guard us against tasting or eating any substance offensive to the olfactory nerves, and at the same time, give us notice of the vicinity of putrid matter, as well as to be a medium of health and pleasure. It is not maintained that the sole impression of an æriform poison is on the olfactories. These are but sentinels, to give notice of the approach of an ene-

my, which is about to enter the lungs, and although some very potent poisons do not make a very offensive impression on the olfactories, it is but an exception to the general rule.

We have also used fumigations, and what are called disinfecting agents without, as is believed, a very clear perception of the *modus operandi* by which it produced its effect. If it is designed to neutralize the miasm by a chemical union between the agent and the poison, this is a partial recognition of my position, because it could not be effected without a change in the form of the miasm, in a union with the agent, forming a new body. In a human miasm, this process is, however, useless, as new virus is constantly generated. But if the object is to occupy the space with a stronger fume or vapor, and thus expel the enemy by physical means, then my explanation has no support from this source.

Nature seems to have defined and specific boundaries to all her works, and though we have endless analogise, orders, species, and varieties, graduated and separated by the most delicate shades of distinction, we find not a single repetition of the same form; nor do we find this law confined to the specific form of the individual—it is carried out in every part of that form. Even in the parasitic forms, every circumstance that relates to locality, nutrition, &c., is definite. The parasites of man, will accept no other habitation. The horse, the cow, the sheep, &c., have each to furnish a home and food for these forms, which cannot exist in other locations. Inanimate forms have their doddies too; each fixed, by its form, to its own peculiar situation. Nature is, in fact, filled with these parasitic forms. For the existence of these, and many other facts, we have never been able to account. That there is a law of nature at the foundation of these boundaries, and shades of distinctions, is universally acknowledged; but, in what it consists, or how it was carried out, we never knew. The manner in which this circumscribing law, this instinctive principle, is carried into operation, is explained, in the form of the particles of matter never having been repeated, in any of the works of the great Author of psychological, moral, and physical being. This alone, accounts for the phenomena, by which we are surrounded, that, in the form is written the mode and manner of being, and the laws of its existence. That my position has been conclusively sustained, time will prove. But what the particular form is that accompanies any special quality, will, probably, forever remain a mystery.

If the human body could possibly re-produce any miasm which has an origin external to itself, there are but two processes by which it can be effected, neither of which, as we

will show, is either plausible or probable. It must be purely chemical or assimilative. If it be asserted to be chemical, we have no evidence that any chemical affinity whatever, exists between any foreign miasm and the fluids and solids of the human body. But if it does, the result of the union would be a neutral or *tertium quid*, in quantity corresponding to the amount of the constituent elements, and totally different from them. Therefore, no re-production can take place by this process. If it is declared to be an assimilative function from which re-production arises, let the avenue by which it enters the system be what it may, the foreign poison must undergo many changes, many a searching scrutiny, by vigilant and faithful sentinels, in the various organs forming the chylapocotic viscera, before the enemy will be permitted to pass, and in place of being permitted to enter into the chemico-vital combination, the intruder would be separated, and with the excretions rejected and ejected from the system. Many other objections, equally strong, might be urged against this hypothesis, any of which present inseparable obstacles to its adoption, which must be obviated before it can present a claim sufficiently strong to gain our assent. But even if these could be removed, the previous part of this argument close the controversy.

The yeast and sweet-wort illustration of Professor Watson, is the only one we have seen, and scarcely merits a serious answer, although it emanates from high authority.—The annunciation of the British and Foreign Medico-Chirurgical Review, for April, 1848, of its return to the humoral pathology; the declaration of Dr. Christison, that “cleanliness and ventilation will extinguish any epidemic,”—and the doctrine advanced by Professor Wood, of the University of Pennsylvania, that the human body, in a state of health, will generate the miasm of plague, &c., must pass as thoughtless expressions, or the crudities of science.

My limit forbids me to enter on any points connected with this subject, or dwell on them to the extent, that might be desirable. It seems requisite to observe, however, that a system of pathology, by which the phenomena of healthy and diseased action may be explained, requires a union, not only of the humoral and nervous systems, but animal chemistry and the *vis vitæ*.

It is not a question material to our inquiry, what the particular form of any given miasm may be. Whether these æriform sources of epidemics are impressed with the form of the body from which they originate, or other modifications are taken, cannot effect its truth, one way or the other. The same agents cannot give rise two distinct forms. In physiology, the extension of the rose, &c., the form, un-

changed, is propagated. But if the form is either improved or deteriorated, there is a corresponding change of quality, and in chemistry, an union of the same bodies gives, universally, the same form. We are then fully justified, by a fair chemical, physical and scientific analysis, in assuming, that these æriform poisons have a body and a specific form, which is as essential to its existence as such, and that during that existence, it maintains that form as distinct as the figure of a human body or a domestic animal. And hence we have an intelligible reason why the miasm of any one epidemic will produce none but its own specific malady, and know, with equal precision, why we may as well expect the human body to re-produce epsom salts, or musk, or the otto of roses, as a foreign miasm, or any other substance, originating in an external source. This, indeed, forms the boundary line, the partition wall between what are called contagious and non-contagious epidemics.

Having thus laid down a definite boundary between human and other miasms, and very briefly, pointed to some of the laws by which the chemical poisons are regulated, and the phenomena attending their origin and decline; and having developed a law of nature, impressed on matter, by which facts, hitherto wrapped up in obscurity and mystery, are explained on scientific principles, the question, for the present, is respectfully submitted to the profession in the city and elsewhere, for their examination. In doing this, the closest scrutiny is invited, and in such manner as each member of it, may deem expedient.

The position taken, in my essay on the origin of fevers, published in the Missouri Med. and Surg. Journal for May and June last, that the human body could re-produce no miasms but its own, is fully sustained; and the hypothesis of contagion, must be supported by new arguments, or sink into oblivion. It is necessary that its friends should defend it. Any one prepared to engage in it, will find an opponent in the field, ready for the discussion, with whatever powers for analytic investigation he may possess; and whatever may be the fate of the speculations advanced or the incidental points touched in the discussion, he feels satisfied that the leading doctrine—the origin of miasms—is placed on a basis, fixed and permanent, on which it has never before stood, and awaits with composure, the verdict of the profession, both as to that, and the new theory of matter and form, on which it is explained.

There are several topics touched in the course of our discussion, on which, if space permitted, it would have been desirable to enlarge, and extend the inquiry; this, however, must be deferred till another occasion.

